Robinson+Cole

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Also admitted in Massachusetts

November 5, 2014

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
86 Voluntown Road, Stonington, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 140-foot level of the existing 196-foot tower at 86 Voluntown Road in Stonington, Connecticut (the Property"). The tower is owned by SBA. The Council approved Cellco's use of this tower in 2007. Cellco now intends to modify its facility by replacing three (3) of its existing antennas with three (3) model LNX-6514DS-VTM, 700 MHz antennas, at the same level on the tower. Cellco also intends to install three (3) remote radio heads ("RRHs") behind its new 700 MHz antennas and one (1) HYBRIFLEX™ antenna cable. Included in Attachment 1 are specifications for Cellco's new antennas, RRHs and HYBRIFLEX™ cable.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Edward Haberek, Jr., First Selectman for the Town of Stonington. A copy of this letter is also being sent to Blackrock Properties II, LLC, the owner of the Property.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed on the existing platform at the 140-foot level of the 196-foot tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis included in Attachment 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Edward Haberek, Jr., Stonington First Selectman
Blackrock Properties II, LLC
Sandy M. Carter

ATTACHMENT 1

Product Specifications

COMMSCOPE®

LNX-6514DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

POWERED BY ANDREW.

Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	15.7	16.3
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Horizontal Tolerance, degrees	±3	±3
Beamwidth, Vertical, degrees	12.5	11.2
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	20	20
CPR at Sector, dB	10	10
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°

Mechanical Specifications

Color | Radome Material	Light gray | Fiberglass, UV resistant
Connector Interface | Location | Quantity	7-16 DIN Female | Bottom | 2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph
Antenna Dimensions, L x W x D	1847.0 mm x 301.0 mm x 181.0 mm | 72.7 in x 11.9 in x 7.1 in
Net Weight	17.6 kg | 38.8 lb
Model with factory installed AISG 2.0 RET	LNX-6514DS-A1M

Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weights less than 23 kg (50 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

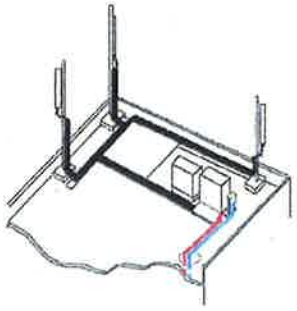
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.

Features

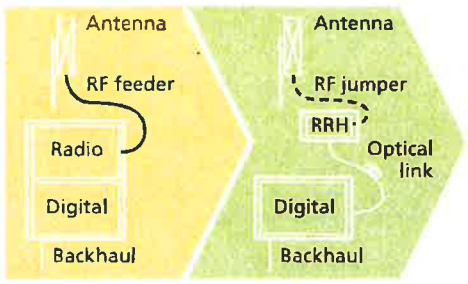
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

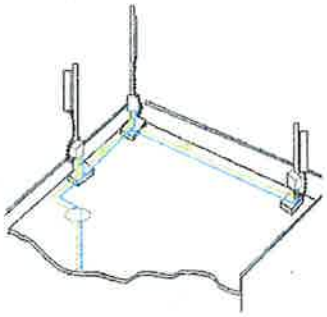
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
  - ¬ 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - ¬ TMA
  - ¬ Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - ¬ One SM fiber (9/125 µm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - ¬ Two MM fibers (50/125 µm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

Alcatel·Lucent

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-93-638 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

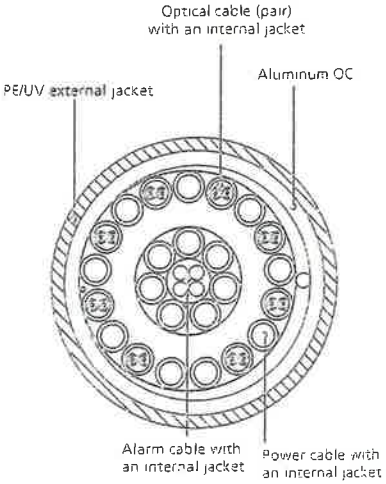


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Stonington E								
Tower Height: 196 ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Nextel	9	100	180	0.0100	851	0.5673	1.76%	
*Sprint CDMA/LTE	3	347	195	0.0098	1900	1.0000	0.98%	
*Sprint CDMA/LTE	1	195	195	0.0018	850	0.5667	0.33%	
*Sprint CDMA/LTE	2	347	195	0.0066	2500	1.0000	0.66%	
*T-Mobile GSM/UMTS	2	12.0815	167	0.0003	1950	1.0000	0.03%	
*T-Mobile UMTS	2	16.108	167	0.0004	2100	1.0000	0.04%	
*T-Mobile LTE	2	24.16301	167	0.0006	2100	1.0000	0.06%	
*MetroPCS	3	727	130	0.0464	2140	1.0000	4.64%	
*AT&T GSM	2	565	150	0.0181	880	0.5867	3.08%	
*AT&T GSM	2	875	150	0.0280	1900	1.0000	2.80%	
*AT&T UMTS	1	283	150	0.0045	880	0.5867	0.77%	
*AT&T UMTS	4	525	150	0.0336	1900	1.0000	3.36%	
*AT&T LTE	1	1615	150	0.0258	740	0.4933	5.23%	
Verizon	**15**	**417**	**140**	**0.1147**	**1970**	**1.0000**	**11.47%**	
Verizon	**9**	**270**	**140**	**0.0446**	**869**	**0.5793**	**7.70%**	
Verizon	**1**	**2699**	**140**	**0.0495**	**2145**	**1.0000**	**4.95%**	
Verizon	**1**	**664**	**140**	**0.0122**	**746**	**0.4973**	**2.45%**	
								50.31%
* Source: Siting Council								

ATTACHMENT 3

FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

Structural Analysis for SBA Network Services, Inc.

196' Monopole Tower

SBA Site Name: Stonington East
SBA Site ID: CT00595-S-05
Verizon Site Name: Stonington East
Verizon Site ID: 117846

FDH Project Number 1469J91400

Analysis Results

Tower Components	93.4%	Sufficient
Foundation	92.4%	Sufficient

Prepared By:

Daniel Falconi, EI
Project Engineer

Reviewed By:

J. Darrin Holt, PhD, PE
Principal
CT License No. 29630

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com

STATE OF CONNECTICUT J. DARRIN HOLT No. 22988 LICENSED PROFESSIONAL ENGINEER

7/31/14

July 31, 2014

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut Building Code

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Stonington, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F and 2005 Connecticut Building Code (2005 CT Building Code)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, foundation dimensions, geotechnical data, and member sizes was obtained from:

- Valmont Industries, Inc. (Order No. 17507-98) Communication Pole Record Drawings dated June 23, 1998
- SAGE Environmental, Inc. (Project No. G004) geotechnical report dated June 10, 1998
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 CT Building Code* is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from Verizon in place at 140 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CT Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, given the existing foundation dimensions (see Valmont Order No. 17507-98), and utilizing the existing soil parameters (see SAGE Project No. G004) the foundation should have the necessary capacity to support both the proposed and existing loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and *2005 CT Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed feedlines should be installed inside the pole's shaft, but may be installed outside in a single row adjacent to the existing coax.
2. RRU/RRH Stipulation: The equipment may be installed in any arrangement as determined by the client.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Feedlines[1]	Carrier	Mount Elevation (ft)	Mount Type
195	(3) RFS APXVSPP18-C-A20 (3) RFS APXVTM14-C-I20 (3) ALU 1900MHZ RRHs (3) Alcatel Lucent TD-RRH8x20-25 (3) ALU 800MHZ (3) ALU 800MHZ RRH Filters (4) RFS ACU-A20-N	(4) 1-1/4"	Sprint	193	(1) Low Profile Platform
167	(3) Ericsson AIR B2A B4P (3) Ericsson AIR B4A B2P (3) Ericsson KRY 112 144 TMAs	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	165	(1) Low Profile Platform
150	(6) Powerwave 7700.00 (2) Powerwave P65-17-XLH-RR (1) KMW AM-X-CD-14-65-00T (6) Powerwave LGP21401 (6) Powerwave LGP13519 (6) Ericsson RRUS-11 (1) Raycap DC6-48-60-18-8F	(12) 1-5/8" (2) DC (1) Fiber	New Cingular[2]	150	(1) Low Profile Platform
140	(6) Antel RWA-80014 (3) Antel BXA-70063/6CF (3) Rymsa MGD5-800T2 (6) RFS FD9R6004/2C-3L	(12) 1-5/8"	Verizon[3]	140	(1) Low Profile Platform
130	(6) Kathrein 742 351	(12) 1-5/8"	Metro PCS	130	(1) Low Profile Platform
30	(1) GPS	---	Sprint	30	(1) Standoff

1. Feedlines installed inside the pole's shaft unless otherwise noted.
2. Verizon's feedlines are installed outside the pole's shaft in a single row.
3. Metro PCS's feedlines are installed outside the pole's shaft in a single row.

Proposed Carrier Final Loading:

Antenna Elevation (ft)	Description	Feedlines	Carrier	Mount Elevation (ft)	Mount Type
140	(6) Antel RWA-80014 (3) Rymsa MG D5-800TX (3) Commscope LNX-6514DS-A1M (3) RRH ALU RRH 2x40-700U (1) RFS DB-T1-6Z8AB-0Z	(12) 1-5/8" (1) 1 5/8" Fiber	Verizon	140	(1) Low Profile Platform

RESULTS

The following yield strength of steel for individual members was used for analysis:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Base Plate	60 ksi
Anchor Bolts	75 ksi (assumed)

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
L1	196 - 154.75	Pole	TP27.76x17.39x0.1875	65.0	Pass
L2	154.75 - 118.75	Pole	TP36.42x26.3166x0.3125	74.5	Pass
L3	118.75 - 74.5	Pole	TP46.91x34.4772x0.375	89.1	Pass
L4	74.5 - 35.5	Pole	TP55.97x44.5274x0.4375	87.9	Pass
L5	35.5 - 0	Pole	TP64x53.2089x0.4688	93.4	Pass
-	0	Anchor Bolts	(24) 2.25"Ø on a 72.76" BC	77.6	Pass
-	0	Base Plate	PL 2.5" x 78.77"Ø	79.6	Pass

**Capacities utilize 1/3 allowable stress increase for wind per TIA/EIA-222-F.*

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis* *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	56 k	60 k
Shear	47 k	45 k
Moment	5,585 k-ft	5,768 k-ft

** Foundation determined to be adequate per independent analysis.*

GENERAL COMMENTS

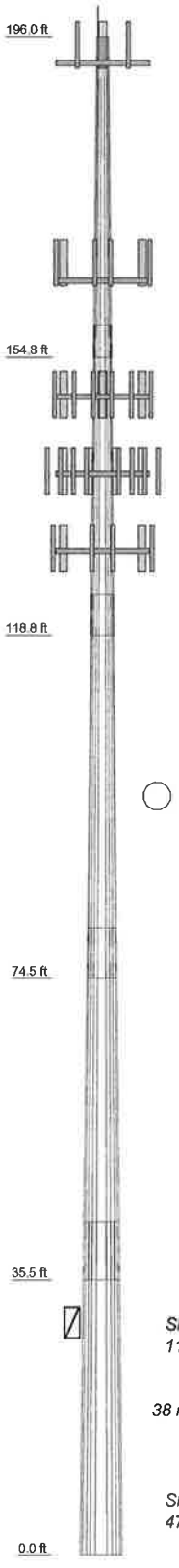
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

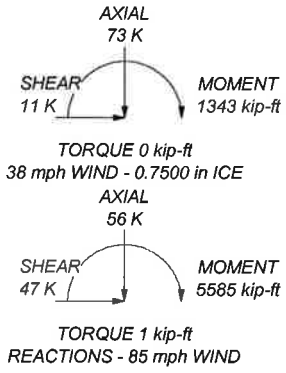
LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX

Section	5	4	3	2	1
Length (ft)	43.00	45.50	49.50	40.25	41.25
Number of Sides	12	12	12	12	12
Thickness (in)	0.4688	0.4375	0.3750	0.3125	0.1875
Socket Length (ft)		7.50	6.50	5.25	4.25
Top Dia (in)	53.2089	44.5274	34.4772	26.3166	17.3900
Bot Dia (in)	64.0000	55.9700	46.9100	36.4200	27.7600
Grade			A572-65		
Weight (K) 38.1	12.8	10.9	8.2	4.3	1.9





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	196	P65-17-XLH-RR w/Mount Pipe	150
APXVSPP18-C-A20 w/Mount Pipe	193	AM-X-CD-14-65-00T w/ Mount Pipe	150
APXVSPP18-C-A20 w/Mount Pipe	193	(2) Powerwave LGP21401 TMAs	150
APXVSPP18-C-A20 w/Mount Pipe	193	(2) Powerwave LGP21401 TMAs	150
1900 MHz RRH	193	(2) Powerwave LGP21401 TMAs	150
1900 MHz RRH	193	(2) Powerwave LGP13519 TMA Diplexers	150
1900 MHz RRH	193		
800 MHz RRH	193	(2) Powerwave LGP13519 TMA Diplexers	150
800 MHz RRH	193		
800 MHz RRH	193	(2) Powerwave LGP13519 TMA Diplexers	150
800 MHz Filter	193		
800 MHz Filter	193	(2) RRUS-11	150
800 MHz Filter	193	(2) RRUS-11	150
ACU-A20-N RET	193	(2) RRUS-11	150
ACU-A20-N RET	193	DC6-48-60-18-8F Surge Arrestor	150
(2) ACU-A20-N RET	193	(1) Low Profile Platform MNT	150
(1) Low Profile Platform MNT	193	(1) Low Profile Platform MNT	140
APXVTM14-C-I20 w/ Mount Pipe	193	(2) RWA-80014 w/Mount Pipe	140
APXVTM14-C-I20 w/ Mount Pipe	193	(2) RWA-80014 w/Mount Pipe	140
APXVTM14-C-I20 w/ Mount Pipe	193	(2) RWA-80014 w/Mount Pipe	140
TD-RRH8x20-25	193	MG D5-800Tx w/ Mount Pipe	140
TD-RRH8x20-25	193	MG D5-800Tx w/ Mount Pipe	140
TD-RRH8x20-25	193	MG D5-800Tx w/ Mount Pipe	140
AIR 21 B2A/B4P w/Mount Pipe	165	LNX-6514DS-AIM w/ Mount Pipe	140
AIR 21 B2A/B4P w/Mount Pipe	165	LNX-6514DS-AIM w/ Mount Pipe	140
AIR 21 B2A/B4P w/Mount Pipe	165	LNX-6514DS-AIM w/ Mount Pipe	140
AIR 21 B4A/B2P w/Mount Pipe	165	RRH 2x40 07-U RRU	140
AIR 21 B4A/B2P w/Mount Pipe	165	RRH 2x40 07-U RRU	140
AIR 21 B4A/B2P w/Mount Pipe	165	RRH 2x40 07-U RRU	140
KRY 112 144/1	165	DB-T1-6Z-8AB-0Z	140
KRY 112 144/1	165	(2) 742 351 w/Mount Pipe	130
KRY 112 144/1	165	(1) Low Profile Platform MNT	130
(1) Low Profile Platform MNT	165	(2) 742 351 w/Mount Pipe	130
(2) 7700.00 w/Mount Pipe	150	(2) 742 351 w/Mount Pipe	130
(2) 7700.00 w/Mount Pipe	150	GPS	30
(2) 7700.00 w/Mount Pipe	150	(1) Standoff MNT	30
P65-17-XLH-RR w/Mount Pipe	150		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 93.4%

FDH Engineering, Inc.
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
Phone: 9197551012
FAX: 9197551031
Tower Analysis

Job: Stonington East, CT00595-S-05			
Project: 1469J91400			
Client: SBA Network Services, Inc.	Drawn by: DFalconi		App'd:
Code: TIA/EIA-222-F	Date: 07/31/14		Scale: NTS
Path:			Dwg No. E-1